
FUEL CHEMISTRY NEWS

Newsletter of the ACS Division of Fuel Chemistry

Volume 81, No. 1

<http://www.anl.gov/PCS/acsfuel/>

Summer 2002

Message from the Chair



This has been a year of change for the Fuel Chemistry Division. First, the Division was incorporated as a Nonprofit Corporation on August 27, 2001 under the name *Division of Fuel Chemistry of the American Chemical Society, Inc* (see highlights from Executive Committee meeting). Second,

instead of a large package of Preprints arriving at your doorstep this spring, you were greeted with a small, thin, and at times unnoticed, envelope containing the first issue of the Division of Fuel Chemistry's Preprints on compact disk. The decision to print CDs was based on the need to reduce the cost of the preprints and the results of the division survey last fall that indicated that the majority of division members preferred CD or Web access rather than paper copies. The Division also printed a small number of paper copies for library orders and for sale at the Spring ACS meeting. I would like to thank Jerry Hunt, Director of Preprints, for all his efforts in making the transition from paper to CD, and his work with the ACS to get our preprints on the web. This was a large undertaking for one person, and I think we have a good product. Nevertheless, I would like your feedback (i.e., constructive comments) on how we can make a better product to serve our division's needs. Now that the transition from paper to CD is almost complete, Jerry has asked to step down as Director of Preprints. I would like to thank Jerry for sticking through the transition, and I would like to welcome Mercedes Maroto-Valer, Pennsylvania State University, as our new Director of Preprints. Jerry and Mercedes will be working together to produce the preprints for the Fall ACS meeting. Finally, as a consequence of the rising costs for publishing and mailing the newsletter, a web-based version of the

newsletter was published this year instead of a paper copy. We also decided to publish the newsletter *after* the ACS meeting rather than before it, so we could highlight activities from the National meeting for division members that could not attend. With the transition to a web-based newsletter, I would like to acknowledge our new Newsletter Editor, David Clifford, Pennsylvania State University. I would also like to thank our past Newsletter Editor, Tony Lizzio, for his hard work and dedication to publishing the Division's newsletter for the past 6 years. There have been many changes for the Fuel Chemistry Division in 2002, which have been in the making for years. I would like to thank all of the members of the Executive committee, both past and present, which have helped in our sometimes-bumpy transition into the electronic age of publishing, and in the operation of the Division during changing times. Our current success is a culmination of your effort. Thanks!

As the former Treasurer of the Division of Fuel Chemistry, I saw a direct correlation between good programming and new division members. Clearly, programming is the lifeblood of our division. Thus, I would like to encourage our division members to get involved and help organize symposium for the National and even Regional ACS meetings. Individual members can make a difference in the programming, and ideas for new symposium are always welcome. If you want to get involved, contact Marek Wojtowicz, Program Secretary, or contact a Program Chair for the National ACS meeting, which is listed in the back of the newsletter. This year's technical program at the National ACS meetings is outstanding! For the spring meeting in Orlando, FL, the Division had a record number of papers (over 175) and a similar number of papers have been submitted to the fall meeting in Boston, MA. This will be the largest number of papers (>300) presented in a given year in the Fuel Chemistry Division. (The previous record was held by John Riley, with 281 papers

presented in 1996.) I would like to congratulate Bob Warzinski, Program Chair 2002, and his symposium organizers for an outstanding job this year!

The Fuel Chemistry Division had the honor of presenting the Henry H. Storch Award to Dr. Burton Davis, Center for Applied Energy Research at the University of Kentucky, at the Spring ACS meeting in Orlando (see article below). The Storch Award Symposium was kicked off by a presentation from Irving Wender, the first recipient of the Storch Award in 1964. There were additional presentations by Chunshan Song (Pennsylvania State University), Susan Stagg-Williams (University of Kansas), and Gabor Kiss (ExxonMobil Research and Engineering). Dr. Davis' lecture was titled "Fischer-Tropsch Synthesis Mechanism-Storch was Correct?" Congratulations to Dr. Davis for his contributions to Fuel Science!

The Fuel Chemistry Division is at an interesting point in its evolution. The average age of the division member is increasing with 30% of our division members over 55 years old. Almost 45% of our members joined the division before 1990 at a time in which the division might have been thought of as the Division of Coal Chemistry. However, as the funding for coal science decreased over the past decade, the division has successfully expanded its programming into new areas of fuel science such as fuel cells, hydrogen, biomass, and environmental issues of fuel science, such as PM 2.5 and CO₂ sequestration. This shift has brought new life into the division with almost 40% of our division members joining after 1996. However, we are not getting our new members involved in the operation and leadership of our division. As I looked around the division this year to find replacements for members of the Executive Committee, the old guard, from the coal science days, have done their time and are ready to move on, while the new division members are reluctant to be active in the division. This is probably a reflection of the times, in which people are so busy with their current commitments (and keeping their jobs), that they are not interested in stretching themselves thinner with more activities. Thus, I start to wonder who will be the future leaders of the Division, and how can we prepare them for the job. Clearly, we need to be proactive and encourage our new members to become involved in divisional activities, such as organizing a symposium (for a start), and remind them of the benefits of being active in a professional society. I would like to see

more young members become involved in the division, especially in areas of long-term interest to fuel science, such as fuel cells, CO₂ sequestration, and biomass processing for example; so that they can help shape the division to meet their needs. Thus, I appeal to our division members to actively recruit your colleagues and students to become division members and be a role model yourself by becoming involved in division functions. Speaking from personal experience, it doesn't take much time to organizing a symposium, assist in the operation of the division, or serve on a committee. Moreover, it's a great way to make contacts. Thus, an opportunity exists in the Fuel Chemistry Division to make a difference and help shape its future. Why don't *you* get involved?

Finally, I look forward to see as many of you as possible in Boston at the Fall ACS meeting. We have an excellent technical program and great social/dinner planned with the Petroleum Division. Stop by the Fuel Division desk to catch up on the latest news. If you have any questions or concerns regarding the division activities, don't hesitate to contact me. See you in Boston.

Phil Britt, Chair
ACS, Division of Fuel Chemistry

Highlights from the Executive Committee and Business Meetings in Orlando, FL

- The Fuel Chemistry Division was incorporated in the District of Columbia as a Nonprofit Corporation on August 27, 2001 under the name *Division of Fuel Chemistry of the American Chemical Society, Inc.* The primary advantage for incorporation is legal and financial protection for individual members who act on behalf of the Division. Nonprofit groups, such as the Fuel Chemistry Division, are subject to lawsuits where the rights of third parties are violated and individual members are liable in unincorporated divisions. The ACS also recommends that divisions that publish preprints should be incorporated, since this endeavor entails greater financial risk. The corporation is run by a Board of Directors, which consists of the Executive Committee of the Division. Thus, other than a few minor name changes, most division members will not even notice the difference (but the Executive committee will sleep easier at night).

- Jack Crelling has asked to step down as Director of Subscriptions after 7 years of service to the Division, and Mark Badger, Pennsylvania State University, has agreed to take over the job. We wish to thank Jack for his service and we wish him well.
- Although it is not common knowledge, the Fuel Chemistry Division has been running a deficit on the preprints for more than 5 years because of increased publication and mailing costs and an increase in the number of papers. A few years ago, the division decided to continue to incur debt as we investigated methods to reduce the preprint costs and explored new publication methods such as putting the Preprints on the web. During this period, the cost of publishing the preprints rose to over \$25/year per member while the Division only collected \$15 in dues per member. The balance was recovered by library subscriptions, which are declining, and by transferring funds from the Division Trust Fund, which is used to fund the Glenn Award, the Storch Award, and support division programming. As a consequence of the survey results from last fall, the division published a CD version of the preprints this spring (see article from Jerry Hunt). Although the CDs are significantly cheaper to produce than the printed copies, the publication costs still exceeds the Division dues. Thus, the Executive committee voted to raise the Division dues \$5 starting in 2003 to cover the cost of the preprints. Now, membership in the Fuel Chemistry Division will cost \$20 for ACS members. This is the first increase in dues in over 5 years. It was also decided to increase the cost of library subscriptions from \$100 to \$130, since the subscription price has not increased in over 10 years.
- Howard Stephen's radio documentary "Running on Empty: American's Energy Crisis" (underwritten by the Fuel Chemistry Division) was awarded 2nd place in the Documentary or Series of Reports category at the 2002 National Headliner Awards, which is presented by the Press Club of Atlantic City. As a consequence of the interest generated in the program after winning the award, Howard (i.e., Vision Trust) requested additional funding to update and rebroadcast the series on

National Public Radio. The Executive committee voted to give Howard \$5,000 out of the Division Trust Fund to help with his efforts to educate the American public on energy issues.

Next year, the division will solicit ideas from the division on additional public outreach and educational activities and provide up to \$5,000 to support one activity. Although the details of the process will be finalized at the fall ACS meeting and distributed in the next newsletter, it's not too early to start thinking about outreach activities.

- Harold Schobert is chairing a committee that will revise the Division's Strategic Plan for 2005, which was written in 1995. Strategic planning is an important exercise which provides the division with a vision of where it wants to be in the future as well as provides a road map to reach these goals. Input from the division members is important in defining the future of our division. Thus, we would like to hear from our division members.
- The Fuel Chemistry Division received \$4,700 from the ACS as part of the 2001 stop-gap funding program, which was established to help under-funded divisions. Currently, the ACS distributes 80% of its allocations to Local Sections and 20% to Divisions. There is a movement in the ACS to change the allocations to provide more funds to the Divisions, most of which are in financial trouble. The stop-gap funding was put into place in 2001 to provide temporary relief to the divisions until a solution (i.e., a redistribution of the allocations) can be found. This is a hot topic for the Division's Councilors.

Election Results (2001; Caroline Burgess)

I would like to present you with the fall 2001 election results. With 11% of the membership voting, the winners are:

Chair-Elect: Jim Franz
 Secretary: Charles Taylor
 Director at Large: Katie Carrado

The election for 2002 will be held by mail-in ballot in July/August 2002.

Farewell from the Secretary (Caroline Burgess)



To the Executive Committee and members of the Fuel Chemistry Division:

I am at the end of my term as the division secretary. I appreciated the opportunity to serve the division as well as learn more about how the division committees function. I look forward to seeing the division grow and hope to see it succeed with on-line preprints and newsletters and with expanding energy outreach to the community at large. I wish the incoming secretary (Charles Taylor) all the best with his new position.

Sincerely,
Caroline Burgess

Summary of the 2002 Orlando Division of Fuel Chemistry Meeting

The Orlando program offered over 170 papers in 8 technical symposia plus the Storch Award Symposium in honor of Burt Davis. The program's strongest emphasis was on issues related to greenhouse gases and renewable resources. Two symposia, one on CO₂ capture and sequestration and another on the utilization of greenhouse gases, together comprised a full week of programming describing recent developments in these complementary fields.

The symposium on CO₂ Capture and Sequestration began the week. It was organized by Dr. Thomas Gentsis from CDX Canada, Inc., and Dr. Edward Peltzer from the Monterey Bay Aquarium Research Institute. The symposium featured sessions on terrestrial and geologic sequestration, oceanic and mineral sequestration, capture technology and novel concepts. The wide variety of papers highlighted the increasing breadth of this new and exciting field.

The organizers of the symposium on Utilization of Greenhouse Gases, Prof. Changjun Liu from Tianjin University, Prof. Richard Mallinson from the University of Oklahoma, and Prof. Michele Aresta

from Università degli Studi di Bari, assembled a high-quality symposium with speakers from many countries. This symposium was opened by a keynote address by Prof. Aresta in which he showed that the implementation of innovative synthetic technologies based on CO₂ could contribute to the reduction of carbon dioxide emissions. If CO₂ recovery becomes an industrial technology, large amounts would be available at low cost. Avoidance of emissions into the atmosphere could also be complemented by more environmentally friendly solvent shifts, waste minimization, and carbon recycling. Other technical papers in this symposium reinforced these observations.

This symposium also contained presentations that focused on other important greenhouse gases, including methane and nitrous oxides. Methane is a more potent greenhouse gas compared to CO₂. Most presentations related to methane conversion involved indirect conversion of methane via syngas formation to produce methanol or liquid hydrocarbons or other valuable chemicals. Usually, the syngas production from methane accounts for 50-75% of the capital costs. Hence, there is a considerable incentive to optimize technologies for reducing the cost. This was reflected in several of the presentations. Other presentations in the Symposium focused on plasma conversion of greenhouse gases and the biofixation of CO₂. The organizers are to be especially congratulated for receiving permission to prepare an ACS Symposium Series book based on their successful symposium.

The CO₂ and greenhouse gas symposia were complemented by a symposium on the Chemistry of Renewable Fuels and Chemicals. Bob Evans from the National Renewable Energy Laboratory and Phillip Britt from Oak Ridge National Laboratory organized this symposium that contained twenty-six papers on topics ranging from basic to applied research. The symposium, which closed the week, had excellent attendance all the way to the last paper, presented by Bob Evans on Thursday afternoon. The papers were grouped into four thematic sessions which were: production of chemicals from biomass, fundamental studies in cellulose pyrolysis, fundamental studies into the reaction pathways of lignin, and production of higher value products from the pyrolysis of biomass. An underlying theme in many of the presentations was the formation of polycyclic aromatic hydrocarbons

from the pyrolysis of biomass and its constituents. Through the presentations and the lively discussions, it became clear that significant progress has been made in the utilization of biomass as a renewable source of chemicals and fuels and many additional opportunities exist, but there are still many unresolved scientific issues, where fundamental studies can provide additional insight into potential solutions.

A symposium on Advances in C1 Chemistry, organized by Dr. Christopher Roberts from Auburn University, Dr. Daniel Resascov from the University of Oklahoma and Dr. Robert J. Motal of Chevron Research & Technology Company also attracted over 30 presentations. A keynote address by Dr. Enrique Iglesia from the University of California at Berkeley, highlighted the challenges and progress in the conversion of natural gas into fuels and chemicals.

A symposium on Advances and Challenges in Pyrolysis and Gasification, organized by John Clark of Sasol Carbo-Tar and John Andresen from the Pennsylvania State University was very international in its makeup, with findings reported by researchers from US, Sweden, Norway, China, Japan, and Brazil. One session focused on gasification of coal and biomass, and pyrolysis of coal liquids and model compounds. Another session dealt with value-added products from fossil hydrocarbons as well as the fate of heteroatoms during coal pyrolysis.

Finally, two other symposia focused on computational methods in fuel science and on gas hydrates. This small, but interesting symposia featured papers that represented key advances in these specialized areas.

Finally, all of the organizers and presenters are to be congratulated for persevering through the uncertainties associated with the tragic events of last September. Their efforts were evident in not only the quality of presentations in this highly relevant and successful meeting, but also in the quantity of papers contributed. The Orlando meeting set a new record for the number of contributions for a meeting in the Division of Fuel Chemistry. Thank you.

Bob Warzinski
2002 Program Chair

Burt Davis, Storch Award (John Larsen)



The research conducted by Dr. Burton H. Davis is recognized for its creativity, significance and breadth. During the past five years he has made important

contributions in indirect coal liquefaction through his studies of the Fischer-Tropsch synthesis, in direct coal liquefaction and to the upgrading of coal liquid products. He has made contributions to the understanding the mechanism of alkane dehydrocyclization and to the structure of reforming catalysts. In these and other research areas, he has made effective use of isotopic tracer studies to obtain understanding of the fundamental science while also utilizing large reactor systems appropriate for generating data useful for commercial applications.

Davis has studied the production of individual fractions (gases, oils, asphaltenes, preasphaltenes, insolubles) during the conversion of a wide range of coals, including hundreds of bench and channel samples. Three lumped parameters (oil + gas, Asphaltenes + preasphaltenes, and insoluble organic matter) were obtained as a function of a severity index, defined in terms of reaction temperature and time. One investigator wrote, "From their innovative induction of ternary plots of the three lumped parameters, along with plots of individual fractions vs. severity index, [they] deduced reaction pathways for a number of coals during either thermal or catalyzed liquefaction." He made the surprising and important conclusion that a catalyst could change a reaction rate but not alter the reaction pathway.

David has made significant strides in understanding the upgrading of coal derived liquid transportation fuels, demonstrating that the maximum rate of removal of the three heteroatoms – N, S, and O – occurs for the same, rather than different, transition metal sulfide catalysts. He has followed the fate of the individual nitrogen and sulfur compounds during hydrotreating and has provided information on the kinetics of HDS and HDN under competitive reaction conditions. He has demonstrated that, contrary to current views, sulfur compounds undergo hydrogenation prior to the HDS reaction; his work has also furnished evidence that simple kinetic

orders do not apply, even for many of the individual nitrogen and sulfur compounds.

During the past five year period, Davis has made notable advances in understanding of the Fischer-Tropsch synthesis with iron catalysts. He has provided strong support of the "Storch Mechanism" which involves an oxygenate intermediate for iron catalyst rather than the currently viewed surface carbide mechanism. He conclusively dominate, using isotopic tracers, that carbon dioxide serves to initiate the chain growth for the hydrocarbon production but that only carbon monoxide contributes to chain growth. He has shown that secondary reaction make, at most, small contributions to the Fischer-Tropsch synthesis and that alkenes are unable to participate in secondary reactions nearly to the extend proved by alcohols. In addition to the mechanistic results, he has developed an iron catalyst with an approximately 50% improvement in activity for slurry over the "standard Kölbel catalyst".

Davis has provided the most detailed understanding of the structure of a naphtha reforming catalyst and the mechanism of the dehydrocyclization catalyst. Using a variety of sophisticated instrumental techniques, he identified Pt-Sn alloy formation and the role of the alloy in catalytic activity. Using both radioactive and stable isotopic tracer techniques, he has demonstrated that the monofunctional metal catalyzed cyclization occurs through the direct formation of a six-carbon ring. His creative utilization of deuterium labeled compounds has presented evidence that chemisorption is the rate determining step in dehydrocyclization, a view that contrasts with accepted views.

Davis' work has provided strong evidence that ether formation with a heterogeneous catalyst occurs by a bimolecular substitution mechanism involving a Walden inversion. Even with catalysts such as alumina, ether formation may be a dominate reaction with secondary alcohols and, using an optical isomer of 2-butanol, Davis showed that all ten possible isomers are formed in the expected quantities. To accomplish this, he developed a gas chromatographic technique that allowed utilization for the inverse kinetic isotope effect and the separation of optical isomers. As part of this study, he extended understanding of the kinetic isotope effect in gas chromatography. Isotopic tracer studies utilizing alcohols allowed Davis and coworkers to identify much of the reaction network for the complex

mechanism involved in conversion of methanol to gasoline-range hydrocarbons using a zeolite catalyst. This work illustrated Davis' ability to make effective use of a wide range of disciplines to make effective advances in our basic understanding of a number of reaction mechanisms.



First Storch Award winner, Irving Wender, and 2002 Storch Award winner Burt Davis

A unifying aspect of Davis' research has been his use of isotopic tracer techniques and a broad range of disciplines to develop detailed mechanistic understanding of complex, real-world problems. An example is his use of a natural abundance isotope technique to demonstrate that about one-third of the sulfur contained in a hydrotreating catalyst is very labile and exchanges within a day whereas the remainder slowly exchanges during a 90-day period, and all of this was accomplished in a six-ton per day coal liquefaction facility.

In addition to his scientific research, Davis has become very active in the history of catalysis and related areas. In this effort, Davis has developed an extremely extensive archive of videotapes of persons who contribute to his research area.

Select Pictures from the Division Dinner
(Orlando, 2002)



Phil is on-deck for his rendition of Rod Stewart's "Do You Think I'm Sexy?"



Kliti Grice wondering if having "Penn State" somewhere on your resume is a prerequisite for sitting at this table.



Winner gets to take home a dining room squid-light ! (Eric Suuberg and Joe Callo)



The subtle "aquarium" theme had all in good spirits



Anticipation for the air-hockey tournament to follow was heavy

Richard H. Glenn Award (Chicago, 2001)

In 1956, the ACS Fuel Chemistry Division, in cooperation with Bituminous Coal Research, Inc., established an award to recognize the best paper presented at Division Symposia. In 1972, the award was named in honor of Richard A. Glenn, who served as Assistant Director of Research at Bituminous Coal Research, Inc. and as



Chairman of the Fuel Chemistry Division in 1960. All papers presented at Fuel Chemistry Division symposia are eligible for this award. Session chairs review the papers in their sessions and select about one paper for every ten submitted that they feel are the most innovative and interesting. A selection committee then reads all of the papers and attends the presentations of those papers at the meeting. Based on the oral presentation, technical subject matter, and the quality of the preprint, the committee selects a paper to receive the R.A. Glenn Award.

At the 222nd National American Chemical Society Meeting in Chicago, IL, over 145 papers were reviewed for the Glenn Award. The selection committee selected the paper titled "Chemistry-Morphology-Property Relationships of Novel Proton Exchange Membranes for Direct Methanol Fuel Cells" authored by Michael A. Hickner, Feng Wang, Yu Seung Kim, and James E. McGrath from Virginia Polytechnic Institute and State University, and Bryan S. Pivovar and Thomas A. Zawodzinski from Los Alamos National Laboratory to receive the Richard A. Glenn Award (see *Prepr. Pap.-Am. Chem. Soc., Div. Fuel Chem.* **2001**, 46(2), 459). This paper was presented in the Symposium on *Recent Advances in Fuel Cells*. The Award plaques and a check for \$500 were presented to the authors at the Division dinner held on April 9 at the 223rd National American Chemical Society Meeting in Orlando, FL. The selection committee would like to congratulate the authors for their outstanding contribution to the division's technical program.

Glenn Award Revised Best Paper Selection Process (Sue Brandes; past chair)

Choice of top 10% of papers made by Symposium Chairs
Symposia chairs choose papers from their symposia for the Glenn award

- a. Authors are invited to present a poster at the SciMix
 - ❖ Attendance at the SciMix is not mandatory to be a Glenn Awardee
- b. Symposia chairs judge the written paper and the oral presentation

Mechanism to narrow down the top 10% of the papers selected for the SciMix to 4 - 5 papers before the National Meeting.

- a. Chair-elect (Chair of Glenn Award Committee) will obtain the pdf preprint file of the top 10% of the papers from the symposium chairs
- b. The Chair-elect will disseminate the pdf files to the Glenn Award selection committee. (The committee consists of the Program Chair, the Program Chairs for the following years (as many as may attend the meeting), the Past Chair. In the event these individuals will not be in attendance, the Chair-elect can appoint replacements.)¹
- c. The Committee shall read all nominated papers prior to the meeting.
- d. The Chair-elect will solicit comments from the Committee and narrow the selection to 4 to 5 papers. A relative scoring system of 1 (low)- # of papers (high) will be used.
- e. The down-selected papers will be re-scored 1(low) - # of papers (high) based on relative ranking in the top 10%. This score will be added to a presentation score.
- f. The Program Chair will be allowed to add no more than 2 additional papers to the final down-selected list at his/her discretion. This will allow the Program Chair to nominate papers (co)authored by Session Chairs without questions of impropriety.

Mechanism for final selection of Glenn Award Winner.

- a. All members of the Committee will attend each presentation. In the event of scheduling overlaps the Chair-elect will ensure adequate number of judges for each paper.

- b. The Committee will score each presentation using a relative scoring system of 1 (low) - # of papers (high). The presentation score will be added to the written paper score.
- c. The SciMix poster presentation is not considered in the judging.
- d. In the event of a tie, the Chair-elect will break the tie at his discretion after consultation with the Committee members.

Necessity for giving an Award at each national meeting.

- a. Glenn Award Basis: "The objective of research is not achieved when new knowledge is developed; it must also be transmitted in a manner whereby it can be readily understood by those who put it to use."¹
- b. The recommendation of the Participants listed above is that every effort should be made to identify and reward the very best paper presented at each semi-annual meeting.
- c. The selection should be made "...based on the effectiveness of the presentation as well as the quality of the work reported."¹
- d. In the event the committee can not objectively determine that any paper presented at a given meeting represents both "quality" work and is effectively presented then no Award will be given at that meeting.

1. American Chemical Society Division of Fuel Chemistry Officers Manual, p. 28. 1999.

Fuel Preprint News (Jerry E. Hunt; former preprint editor)

Beginning in 2002 each member of the Fuel Division received the *Fuel Preprints* on a CD and has full access to the Web-based on-line version of the *Fuel Preprints* through the ACS website (<http://pubs.acs.org/meetingpreprints/>).

As announced in the *Fuel Newsletter* for 2001, we moved to all-electronic publishing of the preprints, in addition to electronic submission. The Fuel Division

benefited from the groundwork of the Polymer Division in working with the ACS to make electronic processing possible. The transition of the *Fuel Preprints* has not been without problems, but for the most part has been a success. This has been a time-consuming effort that required hundreds of hours of effort. Hopefully, you have noticed a drastic improvement in the presentation quality and uniformity of the preprints. I would like to emphasize that we expect authors to take due care in preparing their preprint from the Fuel Template according to the guidelines described on the Fuel Web site (<http://www.anl.gov/PCS/acsfuel/preprintinfo.html>).

The decision to change the preprint policy was made by the Fuel Executive Committee after input was requested from the Membership in the form of a survey. The survey response was approximately 10% of the membership, which is a typical survey response rate. The results of the survey were: 66% selected web + CD, 20% for web only, 14 % for paper copy. A major motivation for this policy change was financial. The cost of providing a paper preprint to a member of the Division exceeded the amount of dues paid by that member. For several years, the Division has incurred a deficit because of the rising cost of the preprints. We have an obligation to our members to use the dues income wisely, while providing timely and interesting programming at national meetings.

Our new vendor for the CD production and book printing process is Mira Digital Publishing, Inc. of St. Louis, MO. The reason for choosing this vendor is largely a result of the fact that they have experience in producing CD's for the Polymer Division and that they supplied the software that the ACS uses to collect abstracts and papers for journals. This system works reasonably well. The fact that they are accustomed to working with preprints was a big motivation in selecting them for the Fuel Preprints production.

The default membership benefit is now web-based preprints AND a searchable CD. In addition to the web site archive of the preprints, we expect to maintain an archival hardcopy of the preprints under the oversight of the Director of Preprint Subscriptions. We have continued to produce the preprints based on member's placing high value on them as a benefit of membership. We will continue to sell a limited number of hardcopies at the next few meetings to members at cost, and at a slightly higher price for nonmembers. Members may

contact the Director of Preprint Subscriptions for hard copy preprints.

**Small Business Innovative Research (SBIR)
Topic Areas (Theodore Simpson)**

DOE is in the process of preparing its topics for its 2003 Solicitation for Proposals. In effort to get the best possible topic areas for the Fossil Fuels Heading, this is an offer to study suggestions and consider their inclusion. A topic area is not a specific project proposal, but rather an area of technology within which proposals for projects to improve existing technology might be made. For example "cleaner or cheaper fuels," "Solid Oxide Fuel Cells," "CO2 Sequestration," etc, etc. You may have in mind an area within which you would like to propose a project.

If yours is nominated, you will be invited to write up a background and scope for the suggested area. Call 301-903-3913.

**Fall Meeting Deadlines (Marek Wójtowicz;
Program Secretary)**

Dear ACS Fuel Chemistry Division Members:

It has been almost two months since I addressed you by e-mail about the unprecedented early deadline for the Boston meeting, which was set for a date *before* the spring meeting in Orlando took place. I also explained that this was beyond the Division's control and was caused by the unusual lateness of the spring meeting (7–11th April) combined with the uncharacteristically early dates of the fall meeting (18–22 August). I also promised that I would make every effort to restore the normal sequence of events in the future so that we would not have to face similar inconvenience and disruption in the preprint-submission process.

I am pleased to inform you that I made inquiries with the ACS and was told that the above situation should not occur at least until 2007. (2007 is the last year for which meeting dates have been decided.) In addition, I am going to write a letter to the ACS Committee on Meetings and Expositions to let them know the problems that can be caused by unfortunate timing of spring and fall meetings. There is, thus, good reason

to believe that what we experienced last March will never happen again.

Finishing, I would like to take this opportunity and thank all of you who submitted papers to the Boston meeting for the additional effort you made to meet the early deadline. I am sure the results justify the extra mile you traveled: the program looks exceptionally attractive, and we have a record 179 papers to be presented in Boston. This is largely due to the hard work and dedication of Bob Warzinski, the 2002 Program Chair, to whom I wish to extend special thanks and appreciation.

I look forward to seeing you in Boston.

Sincerely,



Marek Wójtowicz
Program Secretary

Future Symposia (2003; C. Song, Program Chair)

2003 Technical Program for ACS Fuel Chemistry Division (Updated 5-16-2002)

Chunshan Song, 2003 Program Chair

Department of Energy & Geo-Environ Engineering, and Clean Fuels & Catalysis Program, The Energy Institute, Pennsylvania State University, 206 Hosler Bldg., University Park, PA 16802, USA; Tel: 814-863-4466; Fax: 814-865-3248; E-mail: csong@psu.edu

Spring 2003

225th ACS Natl. Mtg., March 23-27, 2003, New Orleans

Online submission of the abstract (150-word) and preprint paper (2-pages) by **November 15, 2002** via ACS website <<http://oasys.acs.org/oasys.htm>>.

Instructions and template for preprint papers available at <<http://www.anl.gov/PCS/acsfuel/>>

Topics and Organizers of Symposium

Advances in Techniques for Analytical Characterization in Fuel Chemistry

Walter Rudzinski, Department of Chemistry, Southwest Texas State University, San Marcos, TX, 78666; Tel: 512-245-3120; E-mail: <wr01@swt.edu>; **Randall E. Winans**, Chemistry Division, Argonne National Laboratory, Argonne, IL 60439-4831; Tel: 630-252-7479; Fax: 630-252-9288; E-mail: <rewinans@anl.gov>; **Colin Snape**, University of Nottingham, School of Chemical, Environmental and Mining Engineering (SChEME), University Park, Nottingham NG7 2RD, UK; Tel: +44-115-951-4166; Fax: +44-115-951-4115; E-mail: colin.snape@nottingham.ac.uk

Heavy Hydrocarbon Resources: Characterization, Upgrading and Utilization.

Masakatsu Nomura, Department of Applied Chemistry, Faculty of Engineering, Osaka University, 2-1 Yamada-oka, Suita, Osaka 565-

0871, Japan; Tel: +81-6-6879-7360; Fax: +81-6-6879-7362; E-mail: <nomura@ap.chem.eng.osaka-u.ac.jp>; **Refa Koseoglu**, Saudi Aramco P.O. Box 8560, Dhahran 31311, Saudi Arabia; Tel: 966-3-872-3770; Fax: 966-3-872-3931 (Saudi Arabia); Fax: 603-807-6360 (USA); Email: <koseogor@aramco.com.sa>; <rkoseoglu@hotmail.com>; **Parviz Rahimi**, National Centre for Upgrading Technology, 1 Oil Patch Drive, Suite A202, Devon, AB T9G 1A8, Canada; Tel: 780-987-8708; Fax: 780-987-5349; E-mail: <Parviz.Rahimi@nrcan.gc.ca>

Clean Synthetic Fuels from Coal. 30 Years Progress Since First Oil Crisis

Burtron H. Davis, Center for Applied Energy Research, 2540 Research Park Drive, Lexington, KY 40511; Tel: 859-257-0251; E-mail: <davis@caer.uky.edu>; **John C. Winslow**, National Energy Technology Laboratory, U.S. Department of Energy, PO Box 10940, Pittsburgh, PA 15236-0940, USA; Tel: 412-386-6072; E-mail: <winslow@netl.doe.gov>;

Hydrogen Energy for the 21st Century.

John N. Armor, Corporate Science & Technology, Air Products and Chemicals, Inc., 7201 Hamilton Blvd., Mail Stop R3105, Allentown, PA 18195, USA, Tel: 610-481-5792, Fax: 610-481-2989, E-mail: <armorjn@apci.com>; **Eiichi Kikuchi**, Department of Applied Chemistry, Waseda University, 3-4-1 Okubo, Shinjuku-ku, Tokyo 169-8555, Japan, Tel: +81-3-5286-3203; Fax: +81-3-3200-5349; E-mail: <ekikuchi@mn.waseda.ac.jp>; **Chunshan Song**, Dept. of Energy & Geo-Environ Eng and Clean Fuels and Catalysis Program, Pennsylvania State University, 206 Hosler Building, University Park, PA 16802, USA, Tel: 814-863-4466; Fax: 814-865-3248; E-mail: <csong@psu.edu>

Advances in Membranes for Energy and Fuels

Applications.

Arun Bose, National Energy Technology Laboratory, U.S. Department of Energy, PO Box 10940, Pittsburgh, PA 15236-0940, USA; Tel: 412-386-4467; E-mail: <arun.bose@netl.doe.gov>;

Masahiko Matsukata, Department of Applied Chemistry, Waseda University, 3-4-1 Okubo, Shinjyuku-ku, Tokyo 169-8555, Japan; Tel: +81-3-5286-3850; Fax +81-3-5286-3850; E-mail: <mmatsu@mn.waseda.ac.jp>

Environmental Catalysis by Metal Sulfides,

Carbides and Nitrides for Ultra Clean Fuels.

(FUEL will preprint; co-sponsored by PETR)

Henrik Topsoe, Catalysis Research, R&D Division, Haldor Topsoe A/S, Nymollevvej 55, DK-2800 Lyngby, Denmark; Tel: +45-4527-2458; Fax: +45-4527-2999; E-mail: <het@topsoe.dk>;

Slavik Kasztelan, Kinetics and Catalysis Department, Institut Francais du Petrole, 1 et 4, avenue de Bois-Preau, 92852 Rueil-Malmaison Cedex, France; Tel: +33-1-4752-6848; Fax: +33-1-4752-6055; E-mail: <Slavik.KASZTELAN@ifp.fr>;

Chunshan Song, Dept. of Energy & Geo-Environ Eng and Clean Fuels and Catalysis Program, Pennsylvania State Univ, 206 Hosler Bldg., University Park, PA 16802, Tel: 814- 863-4466; Fax: 814-865-3248; E-mail: <csong@psu.edu>

Automotive Emission Control Through Fuel Formulation and Fuel Additives

Andre' L. Boehman, Department of Energy and Geo-Environmental Engineering, Pennsylvania State University, 114B Hosler Building, University Park, PA 16802-5000, USA; Tel: 814-865-7839; Fax: 814-865-3248; E-mail: <boehman@ems.psu.edu>;

John Li, Ford Research Laboratories, MD 3179, 2101 Village Road, Dearborn, MI 48121, USA; Tel: (313) 323-8073; Fax: (313) 594-2963; E-mail: <jli6@ford.com>

Carbon Materials and Organic Chemicals from Coal.

John M. Andréen, Energy Institute, The Pennsylvania State University, 209 Academic Project Building, University Park, PA 16802-

2303, USA; Tel: 814-865-2484, Fax: 814-865-3573; E-mail: <jma13@psu.edu>;

Anthony Lizzio, Illinois State Geological Survey, 615 East Peabody Drive, Champaign, IL 61820, USA; Tel: 217-244-4985; Fax: 217-333-8566; E-mail: <lizzio@isgs.uiuc.edu>;

Clean Coal Technology.

Kouichi Miura, Department of Chemical Engineering, Kyoto University, Kyoto 606-8501, Japan, Tel: +81-75-753-5578, Fax: -81-75-753-5909; E-mail: <miura@cheme.kyoto-u.ac.jp>;

Steve A. Benson, Energy & Environmental Research Center, University of North Dakota, P.O. Box 9018, Grand Forks, ND 58202, Tel: 707-777-5177; Fax: 701-777-5181; E-mail: <sbenson@eerc.und.nodak.edu>;

Terry F. Wall, CRC for Coal in Sustainable Development, University of Newcastle, Newcastle 2308, Australia, Tel: +61-2-4921-6179; Fax: +61-2-4921-6920; E-mail: <cgtfw@cc.newcastle.edu.au

Carbon Dioxide Capture and Sequestration

Curt White, National Energy Technology Laboratory (NETL), P. O. Box 10940, Cochran Mill Road, Building 84 Room 225, Pittsburgh, PA 15236; Tel: 412-386-5808; E-mail: <Curt.White@netl.doe.gov>

Recent Advances in CO₂ Conversion and Utilization.

Abolghasem Shamsi, National Energy Technology Laboratory, U.S. Department of Energy, 3610 Collins Ferry Road, Morgantown, WV 26505, Tel: 304-285-4360; Fax: 304-285-4403, E-mail: <ashams@netl.doe.gov>;

Michele Aresta, Department of Chemistry, University of Bari, Campus Universitario, 4, Trav. 200 Re David, Bari 70126, Italy; Tel: 39-80-544-2084; Fax: 39-80-544-2083; E-mail: <aresta@metea.uniba.it>;

Yun Hang Hu, Corporate Strategic Research, ExxonMobil Research and Engineering Company, 1545 Route 22 East, Annandale, NJ 08801; Tel: 908-730-2282; Fax: 908-730-3344; E-mail: <Yun.H.Hu@ExxonMobil.Com>

Chemistry of Fuels and Emerging Technologies

(Fuel-Related Research not Covered by Above Topics).

Chunshan Song, Dept. of Energy & Geo-Environ Eng and Clean Fuels and Catalysis Program, Pennsylvania State Univ, 206 Hosler Bldg., University Park, PA 16802, Tel: 814-863-4466; Fax: 814-865-3248; E-mail: <csong@psu.edu>

Plasma Technology and Catalysis (Co-sponsored with PETR and I&EC, to be scheduled under Catal Secretariat; No preprints).

Ben W.-L. Jang, Department of Chemistry, Texas A&M U.-Commerce, P.O. Box 3011, Commerce, TX 75429,

Tel: 903-886-5383; Fax: 903-469-6020; E-mail: <ben_jang@tamu-commerce.edu>;

Chang-Jun Liu, State Key Laboratory of C1 Chemistry and Technology, Tianjin University-ABB Plasma Greenhouse Gas Chemistry Laboratory, P.O. Box 796666, Tianjin University, Tianjin 300072, China, Tel: +86 22 27890078; E-mail: <changliu@public.tpt.tj.cn>;

Thomas Hammer, Siemens AG, CT EN3, P.O. Box 3220, 91050 Erlangen, Germany; Tel: +49 (9131) 7-34870, Fax: +49(9131)7-24709, E-mail: <Thomas.Hammer@erls.siemens.de>

Technical Program for ACS Fuel Chemistry Division (Updated 5-16-2002)

Chunshan Song, 2003 Program Chair

Department of Energy & Geo-Environ Engineering, and Clean Fuels & Catalysis Program, The Energy Institute, Pennsylvania State University, 206 Hosler Bldg., University Park, PA 16802, USA; Tel: 814-863-4466; Fax: 814-865-3248; E-mail: <csong@psu.edu>

Fall 2003

226th ACS Natl. Mtg., Sept. 7-11, 2003, New York City.

Online submission of the abstract (150-word) and preprint paper (2-pages) by **April 11, 2003** via ACS website <http://oasys.acs.org/oasys.htm>

Instructions for preprint papers available on-line at <<http://www.anl.gov/PCS/acsfuel/>>

Topics and Organizers of Symposium

Reaction Pathways and Structure-Property Relationships in Fuel Chemistry.

Phillip F. Britt, Oak Ridge National Laboratory, Bldg 4500N, C-26, MS-6197, P. O. Box 2008 (1 Bethel Valley Road), Oak Ridge, TN 37831, USA; Tel: 865-574-5029; FAX: 865-576-5235; E-mail: <brittpf@ornl.gov>

Computer Modeling and Simulation in Fuel Chemistry and Catalysis

Jonathan P. Mathews, Department of Energy & Geo-Environmental Engineering & The Energy Institute, Pennsylvania State University, 151 Hosler Building, University Park, PA 16802, USA; Tel: 814-863-6213, Fax: 814-865-3248; Email: <jpm10@psu.edu>; **Linda J. Broadbelt**, Department of Chemical Engineering, Northwestern University, 2145 Sheridan Road, Evanston, IL 60208-3120; Tel: 847-491-5351; Fax: 847-491-3728; E-mail: broadbelt@northwestern.edu

Catalysts, Processes, and Reactors for Ultra-Clean Gasoline and Diesel Fuels. (FUEL will preprint; co-sponsored by PETR)

Isao Mochida, Institute of Advanced Material Study, Kyushu University, Kasuga, Fukuoka 816, Japan; Tel: 81-92-583-7797; Fax: 81-92-583-7798; Email: <mochida@cm.kyushu-u.ac.jp>; **Jacob A. Moulijn**, Delft University of Technology, Department of Chemical Technology, Section for Industrial Catalysis, Julianalaan 136, 2628 BL Delft, The Netherlands; Tel: +31 (0) 15-278-5008; Fax: +31 (0)15 278 5006; E-mail: <j.a.moulijn@tnw.tudelft.nl>; **Chunshan Song**, Dept. of Energy & Geo-Environ Eng and Clean Fuels and Catalysis Program, Pennsylvania State University, 206 Hosler Bldg., University Park, PA 16802, Tel: 814- 863-4466; Fax: 814-865-3248; E-mail: <csong@psu.edu>

Centennial of Aviation Fuels and Advance in Jet

Fuel Chemistry. (FUEL will preprint; co-sponsored by PETR).

William E. Harrison III. Fuels Branch, Turbine Engine Division, Propulsion Directorate, Air Force Research Laboratory, Bldg. 490, Area B, 1790 Loop Rd N, Wright-Patterson AFB, OH 45433-7103; Phone: 937-255-6601; Fax: 937-255-3893; e-mail: <william.harrison@wpafb.af.mil>

Fuel Processing for Fuel Cell Applications.

Sai Katikaneni, Fuel Cell Energy, 3 Great Pasture Road, Danbury, CT 06813, USA; Tel: (203) 825-6067; Fax: (203) 825-6273; E-mail: <skatikaneni@fce.com>; **Anne M. Gaffney**, Rohm and Haas, P.O. Box 904, 727 Norristown Rd., Spring House, PA 19477-0904; Tel: (215) 619-5260, Fax: (215) 619-1625, E-mail: <Anne_Gaffney@RohmHaas.com>;

Chunshan Song, Dept. of Energy & Geo-Environ Eng and Clean Fuels and Catalysis Program, Pennsylvania State Univ, 206 Hosler Bldg., University Park, PA 16802, Tel: 814-863-4466; Fax: 814-865-3248; E-mail: <csong@psu.edu> ; **Shabbir Ahmed**, Fuel Cell Technology Section, Argonne National Laboratory, 9700 S. Cass Avenue, Bldg. 205, Argonne, IL 60439; Tel: 630/252-4553; E-mail: <ahmed@cmt.anl.gov>

Vision 21 Power Plants and Advances in Electricity Generation.

Lawrence Ruth, National Energy Technology Laboratory, U.S. Department of Energy, PO Box 10940, Pittsburgh, PA 15236-0940, USA; Tel: 412-386-4461; E-mail: <ruth@netl.doe.gov>

Environmental Issues (Trace Metals, PM, PAHs) in Fossil Fuel Utilization

Richard Anderson, National Energy Technology Laboratory (NETL), P. O. Box 10940, Cochran Mill Road, Building 84 Room 225, Pittsburgh, PA 15236; Tel: 412-386-5808; E-mail: <Richard.Anderson@NETL.DOE.GOV>

Synthetic Clean Fuels from Natural Gas and Coalbed Methane. 30 Years Progress Since First Oil Crisis (FUEL will preprint; seek co-sponsorship with PETR)

Devinder Mahajan, Department of Applied Science , Brookhaven National Laboratory,

Upton, NY 11973; Tel: 631-344-4985, Fax: 631-344-7905, E-mail: <dmahajan@bnl.gov>; **Qiming Zhu**, State Key Laboratory of C1 Chemical Technology, Department of Chemistry, Tsinghua University, Beijing, 100084, China, Tel: 86-10-6278-4589, Fax: 86-10-6277-0304; E-mail: "Zhu, Qiming" <cocl@mail.tsinghua.edu.cn>;

Advances in Biomass Processing and Combustion.

Mark Badger, Analytical Research Group, The Energy Institute, The Pennsylvania State University, C211 Coal Utilization Laboratory, University Park. PA 16802-2303, USA, Tel: 814-863-8363; Fax: 814-865-3573; E-mail: <mwb7@psu.edu>; **Bruce Miller**, The Energy Institute, The Pennsylvania State University, C204 Coal Utilization Laboratory, University Park. PA 16802-2303, USA, Tel: 814-865-3093; Fax: 814-865-3573; E-mail: <bgm3@psu.edu>; **Robert J. Evans**, National Bioenergy Center, National Renewable Energy Laboratory, 1617 Cole Blvd, Golden, CO 80401.

Chemistry of Fuels and Advanced Technologies (Fuel-Related Research not Covered by Above Topics).

Chunshan Song, Dept. of Energy & Geo-Environ Eng, and Clean Fuels & Catalysis Program, Pennsylvania State Univ, 206 Hosler Bldg., University Park, PA 16802, Tel: 814- 863-4466; Fax: 814-865-3248; E-mail: <csong@psu.edu>

Upgrading of Heavy Oils and Resids. 30 Years Progress Since First Oil Crisis. (co-sponsored with PETR, with PETR for preprints)

Paul O'Connor, FCC Catalysts WW, Akzo Nobel Catalysts, 3800 AE Amersfoort, The Netherlands; Tel: 31-33-4676588, Fax: 31-33-4676154, E-mail: <paul.oconnor@akzonobel.com>; **Toru Takatsuka**

Future Symposia (2004; Semih Eser, Program Chair)

Department of Energy & Geo-Environmental Engineering, The Pennsylvania State University, 101 Hosler Building, University Park, PA 16801; (814) 863-1392, fax: (814) 865-3248, e-mail: seser@psu.edu.

Anaheim, CA, March 28-April 1, 2004

Abstracts and preprints due by November 1, 2003; on-line submissions only.

| Symposium Title | Symposium Organizers |
|---|--|
| Advances in Analytical Characterization of Fuels and Fuel Precursors (co-sponsored by the Division of Geochemistry) | David J. Clifford, The Energy Institute, Penn State University, 209 Academic Projects Building, University Park, PA 16802; Phone: (814) 865-3523; Fax: (814) 865-3573; e-mail: djc175@psu.edu |
| Catalysis in Fuel Processing and Environmental Protection (co-sponsored by the Division of Environmental Chemistry) | Symposium Chairs needed |
| Characterization, Upgrading, and Utilization of Heavy Hydrocarbon Resources (co-sponsored by the Division of Petroleum Chemistry) | Refa Koseoglu, Saudi Aramco P.O. Box 8560.Dhahran 31311, Saudi Arabia; Phone: 966-3-872-3770; Fax: 603-807-6360 (USA); e-mail: koseogor@aramco.com.sa ; Semih Eser, Department of Energy & Geo-Environmental Engineering, The Pennsylvania State University, 101 Hosler Building, University Park, PA 16801; (814) 863-1392, fax: (814) 865-3248, e-mail: seser@psu.edu |
| Chemistry of Renewable Fuels and Chemicals | Symposium Chairs needed |
| Chemistry of Solid, Liquid, and Gaseous Fuels | Semih Eser, Department of Energy & Geo-Environmental Engineering, The Pennsylvania State University, 101 Hosler Building, University Park, PA 16801; (814) 863-1392, fax: (814) 865-3248, e-mail: seser@psu.edu . |
| Energy Choices and the Environment | Symposium Chairs needed |
| Energy Generation and Greenhouse Gas Emissions | Symposium Chairs needed |
| Utilization of Greenhouse Gases | Chang-jun Liu, State Key Lab. of C1 Chem. and Technol., Tianjin University-ABB Plasma GreenhouseGas Chem. Lab. P.O. Box 796666, Tianjin University, Tianjin 300072, China; 86 22 27890078, fax: 86 22 27890078, e-mail: changliu@public.tpt.tj.cn ; Thomas Hammer, Corporate Technology Department CT EN3, P.O. Box 3220, D-91050 Erlangen, Germany; 49-9131-7-34870, fax: 49-9131-7-24709, e-mail: |

| Symposium Title | Symposium Organizers |
|---|---|
| | Thomas.Hammer@erls.siemens.de ; Richard Mallinson, Institute for Gas Utilization Technologies, The University of Oklahoma 100 E. Boyd, EC T335, Norman, OK 73019; 405 325 4378, fax: 405 325 5813, e-mail: mallinson@ou.edu |
| Molecular Modeling and Reaction Chemistry | Symposium Chairs needed |
| Ultraclean Transportation Fuels (co-sponsored by the Division of Petroleum Chemistry) | Symposium Chairs needed |

Philadelphia, PA, August 22-26, 2004

Abstracts and preprints due by April 21, 2004; on-line submissions only.

| Symposium Title | Symposium Organizers |
|--|--|
| Carbon Materials and Organic Chemicals from Coal | Symposium Chairs needed |
| Chemistry and Applications of Carbon Nanotubes and Nanoparticles | Symposium Chairs needed |
| Chemistry of Coke and Carbon Deposition in Fuel Systems | Semih Eser, Department of Energy & Geo-Environmental Engineering, The Pennsylvania State University, 101 Hosler Building, University Park, PA 16801; (814) 863-1392, fax: (814) 865-3248, e-mail: seser@psu.edu |
| Chemistry of Solid, Liquid, and Gaseous Fuels | Semih Eser, Department of Energy & Geo-Environmental Engineering, The Pennsylvania State University, 101 Hosler Building, University Park, PA 16801; (814) 863-1392, fax: (814) 865-3248, e-mail: seser@psu.edu |
| Downstream Processes in Oil and Gas Production (co-sponsored by the Division of Petroleum Chemistry) | Symposium Chairs needed |
| Multi-pollutant Control Technologies for Coal Fired Combustion Systems (co-sponsored by the Division of Environmental Chemistry) | Michael Holmes, Energy & Environmental Research Center, University of North Dakota, P.O. 9018, Grand Forks, ND 58202-9018; 701-777-5276, fax: 701-777-5181, e-mail: mholmes@undeerc.org |
| Impacts of Inorganic | Steven A. Benson, Energy & Environmental Research |

| Symposium Title | Symposium Organizers |
|---|---|
| Components on Power System Performance | Center, University of North Dakota, P.O. 9018, Grand Forks, ND 58202-9018; 701-777-5177, fax:701-777-5181,e-mail: sbenson@undeerc.org |
| Energy Storage Systems | Symposium Chairs needed |
| Fuel Cells | Symposium Chairs needed |
| Hydrogen Production, Separation, and Storage | James R. Brenner, Department of Chemical Engineering, Florida Institute of Technology , 150 West University Boulevard, 210 Olin Engineering Bldg, Melbourne, FL 32901-6975; (321) 674-7560, fax: (321) 674-7565; e-mail: jbrenner@fit.edu , or jb012767@aol.com Symposium Co-chairs needed |



American Chemical Society (ACS) Symposium

Advances in Biomass Processing and Combustion

September 7-11, 2003, New York City, NY.
226th American Chemical Society (ACS) National Meeting
Sponsored by the ACS Fuel Chemistry Division

Call for Papers

Contributions are invited on the following topics:

Processing

Gasification and gas conditioning

Syngas utilization

Pyrolysis

Digestion and fermentation of lignocellulosic material

Digestion for the production of fuel gas

Production of biodiesel

Production of hydrogen

Combustion

Co-firing of biomass and coal

Fluidized bed applications for power generation

Production of biomass feedstocks for combustion applications

Use of biomass-derived renewable fuels in CI and SI engines

Advances in oxygenated fuels for IC engines

Key Dates for On-line Submissions:

April 21, 2003. Deadline for submission of abstracts on -line through the ACS website:

<http://oasys.acs.org/oasys.htm>

April 21, 2003. Deadline for preprints submission on -line through the above website;

Instructions are available at the Fuel Division website: <http://www.anl.gov/PCS/acsfuel/>

Please contact one of the following co-chairs for inquiries and submissions:

Mark W. Badger
The Energy Institute
Penn State University
University Park, PA, 16802
USA
mwb7@psu.edu
Tel: 814-863-8363
Fax: 814-863-7432

Robert J Evans
National Renewable Energy Lab
1617 Cole Blvd.
Golden, CO, 80401
USA
bob_evans@nrel.gov
Tel: 303-384-6284
Fax: 303-384-6363

Bruce G Miller
The Energy Institute
Penn State University
University Park, PA, 16802
USA
bgm3@psu.edu
Tel: 814-865-3093
Fax: 814-863-7432